



Location Intelligence & Geographic Information Systems

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Module 0. About the Course (11 min)

Module 1. What is GIS Actually? (47 min)

- Overview
- *Basic GIS Definition and Common Misconceptions*
 - Basic Definitions of GIS: Part 1– 2
 - Common Misconceptions about GIS
 - GIS vs Traditional Query and Reporting
- *Location Intelligence*
 - Location Intelligence Definition
 - Building Location Intelligence Parts 1–3
 - Additional GIS capabilities
 - A One-Minute Background of GIS Usage
 - GIS Software Vendors
 - Commercial GIS Software Vendors
 - Open Source GIS Software Vendors
 - GIS Software used in this Course
- *What Does GIS Do?*
 - Putting GIS to Work
 - Geospatial Data Outline
 - Is it Locational?
 - What is Geospatial Data Part 1 – 2
 - Structured vs. Unstructured
 - Typical Spatial Data Types
 - Vector vs Raster
 - Commercial Uses of Spatial Data
 - Connection Between Spatial Data and Tabular Data
 - Spatial Data Example
 - Geocoding
 - Geocoding Demo
 - Sources of Spatial Data
 - Spatial Data Download Sites
 - Drawing Your Own Data
 - Importing GPS Points

Module 2A. GIS Functions and Spatial Analysis: Part 1 (38 min)

- Overview
- *Map Production – Basic Function*
 - Map Production Steps
 - Connect to Data Sources
 - Adding Data from a Source
 - Add Lines Data
 - Add Polygon Data
 - QGIS alternative
 - Change County Layer
 - Symbology Menu
 - Point Layer Features
 - Turn Off Map Features
 - Use Attribute Data
 - New Map Features



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- New Map Feature Symbology
- Map Features Revised
- Change Layer Names
- Map Feature Labeling
- Data Rendering by Scale
- Map Layout View
- Map Layout Tools
- Map Elements Added
- *Thematic Mapping*
 - Introductions
 - Thematic Mapping Concepts
 - Table of Contents “LAYERS” in Data
 - Change of Layer Order
 - Layer Properties: General Properties
 - Layer Properties: Data Source
 - Layer Properties: Selection
 - Layer Properties: Single Signal
 - Layer Properties: Multiple Symbols
 - General Map Symbols
 - Other Symbols
 - Layer Properties: Charts
 - QGIS Symbology Classification
 - Layer Properties: Attribute Data
 - Layer Properties: Query Builder
 - Layer Properties: Join & Relates
 - Layer Properties: Time Data Management
 - Layer Properties: HTML and Hyperlinks

Module 2b. GIS Functions and Spatial Analysis: Part 2 (41 min)

- *Geospatial Data Analysis*
 - Geospatial Analysis and Queries
 - How Does Spatial Analysis Work
 - Spatial Queries
 - Geospatial Data analysis Select Visually
 - Select & ID Features Visually
 - Select & ID Toolbar
 - Select by Location
 - Use One Layer to Select from Another
 - Select by Attribute
 - Select by Data Attributes
 - Geoprocessing
 - Geoprocessing Tools Main Menu & Definitions
 - Buffer Tool
 - Clip Tool
 - Union Tool
 - Merge Tool
 - Intersect Tool Dissolve Tool
 - Geospatial Analysis in Action
 - Scenario: West Coast Grocers



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- Create a Layer from Selected Features
- Clip Using West Coast Features
- Result: Highways Clipped to West Coast
- Select by Attribute: West Coast Grocers
- West Coast USA Grocery Stores
- Buffer Tool: 1-Mile Around Major Highways
- 1-Mile Buffer Zoomed to Oregon
- Grocery Stores within 1-Mile Buffer
- 1-Mile Buffer Stores Zoomed to Oregon
- Buffer Groceries within 1-Mile of Major Highway
- Buffer Reporting
- GIS Tools
- *Modeling Building and Scripting*
 - Model Builder
 - Model Builder in Action
 - Building a Model: Parts 1-3
 - Operation Menu
 - Finished Model
 - Running the Model
 - Result: Model Builder in Action
 - Model Builder: Python Script
 - Scripting and Programming Modules
 - Python Scripting
 - Python Scripting Window: Parts 1-2
 - LI Analysis Scenario with Python
 - LI Analysis with Python: Parts 1-3
 - Python Code
 - Python Interpreter Window
 - New Features Added to the Map
 - Result: LI Analysis with Python
 - Custom LI Solutions

Module 3a. Location Intelligence: Part 1 (46 min)

- *Module Overview*
- *Not a New Concept*
 - 1850's Cholera Outbreak: Parts 1-2
 - Redlining
 - Chicago 1939
 - Los Angeles 1939
 - Lasting Effects of Redlining
 - History of Location Intelligence
- *Who Uses GIS for Location Intelligence?*
 - Who's Using GIS for LI?
 - Retail and Consumer Marketing
 - B2B, Wholesalers, Distributors
 - Natural Resource Industries
 - Economic Development on a Wider Scale
 - Missouri Department of Economic Development
 - Westchester County



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- Healthcare
- Non-Profit
- *USAF Missile Site Selection Program*
 - USAF Missile Site Selection Program (1980's)
 - Small ICBM Site Selection Funnel
 - Military Bases in the Lower 48 US States
 - Population Density
 - Road Network
 - Topography
 - Power Transmission and Distribution Network
 - Mapping Site Characteristics
 - Site Selection Conclusion
- *Location Intelligence and Public Utilities*
 - GIS Role in Utilities
 - Water and Sewer System
 - ArcIMS Water & Sewer Map
 - Zoom in Capability
 - Query Spatial Data
 - Schematics
 - Data Reporting and System Analysis
- *Department of Ecology: Underground Tank Inspection & Maintenance*
 - Underground Tank Inspection & Maintenance
 - Wellhead Protection Zones Terminology
 - Public Agency GIS Data Download Sites
 - Metadata
 - Wellhead Protection Zones: Seattle, Redmond, Seattle Airport Area
 - Underground Tanks
 - Underground Tanks Tabular Data
 - Plotting Lat-Long Text Data Parts 1-2
 - Selecting Data Subset by Location Parts 1-2
 - Operating on Data Subsets
 - Adding Fields
 - New Field Added
 - Field Calculator
 - Field Calculator Dialog
 - Symbolization
 - Visually Differentiating Data Subsets
 - Creating Differentiated Labels
 - Multiple Label Parameters
 - Business Related Data to Add

Module 3b. Location Intelligence: Part 2 (64 min)

- *Disaster Preparedness and Response*
 - World Vision: Disaster Preparedness & Response
 - Disaster Response: Oil Spill
 - Disaster Response: American Samoa
 - Disaster Response: Nashville Flood
 - Disaster Preparedness: Weakened Dam
 - Nepal Earthquake Response Parts 1-3



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- Business Transferrables
- *Redistricting*
 - Political Redistricting
 - District Boundary Criteria
 - Business Transferrables
 - Gerrymandering
 - Before Redistricting
 - Layout View
 - Symbology Classification Dialog Parts 1-2
 - Data Break Methods Close-Up
 - Seattle Area Map
 - Seattle Area Map Potential Boundaries
 - Census Blocks
 - Field Calculator Dialog
 - Close-Up: Census Blocks Added
 - Population Density by Census Blocks
 - Creating and Measuring Districts
 - Close-Up: Multiple Layers Added
 - Definition Query and Select-by-Location
 - Result of the First Selection
 - Repeat Steps to Select New Blocks
 - Most of the Blocks are Selected
 - All Blocks Are Selected
 - Statistical Recap
 - Next Steps
 - Final Results
- *Coin Machine Placement Modeling*
 - Coin Machine Placement Model
 - Population Density
 - Commerce Follows Population
 - Rural Urban Commuting Area (RUCA)
 - Model Building Process
 - RUCA Codes Displayed
 - Tools and Statistical Methods Used
 - Significant Variables
 - Actual Vs. Predicted Sales Volumes
 - Coin Machine Results
- *Location Intelligence for Cell Industry*
 - Optimizing Cell Service
 - Telecom Project
 - Project Setup
 - Metro Grid USA System
 - Initial Grid Measures
 - Grid System Detailed Area
 - Initial Grid Detail
 - Later Grid Detail
 - Metro USA Grid Results
- *Location Intelligence and Waste Management*
- *Exploring Uncharted Territory*



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- *Maps as Marketing Tools*
- *Spatial OLAP Technology*
 - OLAP and SOLAP
 - Traditional OLAP
 - Spatial OLAP
 - SOLAP Options
- *Module Summary*
- *Course Summary*